

# ***Headquarters U.S. Air Force***

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*Integrity - Service - Excellence*

## **Condition Based Maintenance Plus (CBM+) – Related Policy**



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HAF/A4ID  
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# ***CBM+ in the USAF***

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- **USAF is compliant with DoD policy**
- **USAF Policy hierarchy: AFI – AFM – AFMCI (MAJCOM) – Organizational Instructions (e.g. Air Logistics Center)**
  - **AFPAM = guidance**
- **USAF Policy Updates**
  - **Air Force Instructions in revision / updates pending**
    - **AFI 21-101 *Aircraft and Equipment Maintenance Management***
    - **AFI 63-1201 becoming AFI 62-101 *Systems Engineering* (updates 63-1201 *Life Cycle Systems Engineering*)**
    - **63-101 Acquisition and Sustainment Life Cycle Management**
  - **Update Released 12 Jan 2012 – New AFI 20-115 Propulsion Management for Aerial Vehicles (Replaced AFI 21-104)**
  - **NEW – AFI 20-101 on Product Support in work, CBM+/RCM unknown**



# CBM+ in Current USAF Policy

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<u>Policy</u>	<u>Sec/Para</u>	<u>Topic</u>	<u>Office/OPR/Topic</u>	<u>CBM+</u>	<u>Notes</u>
AFI 63-101	2.16.6	Roles	A4/7	X	Ensure Condition Based Maintenance Plus (CBM+) concepts and functions are developed and implemented as applicable.
AFI 63-101	2.19.28	Roles	AFMC/CC	X	Ensure Serialized Item Management (SIM), Reliability Centered Maintenance (RCM) and Condition Based Maintenance Plus (CBM+) concepts and functions are developed and implemented as applicable.
AFI 63-101	2.21.18	Roles	AFSC/CC	X	Ensure SIM, RCM and CBM+ concepts and functions are developed and implemented as applicable
AFI 63-101	2.29.9	Roles	Program Mgr/SPM	X	Develop and implement, as applicable, Condition Based Maintenance Plus (CBM+) functions.
AFI 63-101	3.88.6	Sustainment Planning Requirements	Product Support/Sustainment Planning Overview	X	Condition Based Maintenance Plus (CBM+), as an extension of the maintenance design program executed during development, shall be used to improve maintenance agility and responsiveness, increase operational availability, and reduce life cycle total ownership costs. The goal is to perform maintenance only upon evidence of need by employment of technologies, processes, and procedures to improve maintenance/logistics. Enabling technologies and concepts include prognostics, diagnostics, portable maintenance aids, interactive electronic technical manuals, interactive training, data analysis, integrated information systems, automatic identification, reliability-centered maintenance, and joint total asset visibility. See DODI 4151.22, Condition Based Maintenance Plus (CBM+) for Materiel Maintenance, for more details
AFI 63-101	3.96	Sustainment Planning Requirements	Support Equipment/Automatic Test Equip	X	Application of standardized Support Equipment/Automatic Test Systems (SE/ATS) is preferred to provide efficiency and reduce cost. The PM shall minimize the proliferation of system-unique equipment at all levels while ensuring the maintenance and deployment requirements of existing and developing systems are met



# CBM+ in Current USAF Policy (continued)

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AFI 63-107	1.4.3.2	Product Support Strategy Requirements		X	Condition-based maintenance plus (CBM+), reference: DoD Maintenance Policy, Programs and Resources, is an initiative to improve maintenance agility and responsiveness, increase operational availability and reduce life-cycle total ownership costs. The goal of CBM+ is to perform maintenance only upon evidence of need. Condition-based maintenance (CBM) is a set of maintenance processes that rely on a real time assessment of weapon system condition generated by embedded sensors and/or external tests and measurements using portable equipment, CBM+ expands on these basic concepts by employing other technologies, processes and procedures to improve maintenance/logistics. These existing and future technologies, processes and procedures are to be addressed during all phases of a weapon system's life cycle planning, acquisition, sustainment and reclamation.
AFI 63-107	1.4.3.2.1	Product Support Strategy Requirements		X	The enabling technologies and concepts that constitute an acceptable initial AF baseline for achieving CBM+ implementation are: prognostics, diagnostics, portable maintenance aids, interactive electronic technical manuals, interactive training, data analysis, integrated information systems, automatic identification, reliability-centered maintenance (RCM) and joint total asset visibility (JTAV)
AFI 20-115		Propulsion Management for Aerial Vehicles			Condition Based Maintenance Plus (CBM+). CBM+ concepts shall be used to optimize key performance measures of engine readiness, availability, reliability, mean downtime, and ownership costs. Reference DODI 4151.22, <i>Condition Based Maintenance Plus (CBM+) for Materiel Maintenance</i> and AFI 63-101, <i>Acquisition and Sustainment Life Cycle Management</i> .  Engine Health Management (EHM). EHM shall be implemented on propulsion assets. EHM is the application of CBM+ concepts to aircraft engines and implementation may vary depending on the TMS support concept, MAJCOM requirements, and data availability. The goal of EHM is to tie together ET&D and RCM to enable a predictive maintenance end state capability. Refer to or reference TO 00-25-257-CD-1, <i>Technical Manual - Engine Health Management Plus (EHM+) General Information User Manual</i> for additional direction and/or guidance.
AFMCI 63-1201	A2.8.2			X	The overarching support concept should be considered from the start of any development or modification effort. Support concepts like condition based maintenance will drive requirements and design decisions. Early ALC representation in development of the support concept and related requirements is necessary to reduce total ownership costs.



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# ***CBM+ in Current USAF Policy (continued)***

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AFPAM 63-128	2.11.21.5	Life Cycle Management Plan:Program Performance/System Indicators and Requirements		X	Describe your maintenance and inspection program; include the methodology basis (Conditioned Based Maintenance Plus (CBM+), Reliability Centered Maintenance (RCM), and/or Maintenance Steering Group III (MSG-3). Describe the relationship of the RAM approach with other related program efforts such as Weapon System Integrity Programs (WSIP), Aircraft Information Program (AIP), and Military Flight Operations Quality Assurance (MFOQA) Program
AFPAM 63-128	3.7.13	LCS: Maintenance Planning and Management		X	Define requirement for maintenance data collection. Technical Order 00-20-2 provides a broad understanding of the objectives, scope, concept, and policy of Maintenance Data Documentation (MDD) and some intended uses of the data collected. Define what is to be collected (failure, availability, maintenance) and when it should be reported (IOC, turnover, etc.). Define how and where to report data. Integrated Maintenance Data System (IMDS) is the approved Air Force Base Level MDD system and Reliability and Maintainability Information System (REMIS) is the approved Depot Level MDD system.